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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/857,281	06/01/2001	Stefan Schaffler	P01,0158	4895

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EXAMINER

THANGAVELU, KANDASAMY

ART UNIT	PAPER NUMBER
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2123

DATE MAILED: 08/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/857,281	<b>Applicant(s)</b> SCHAFFLER ET AL.	
	<b>Examiner</b> Kandasamy Thangavelu	<b>Art Unit</b> 2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>1 June 2001</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. Claims 1-10 of the application have been examined.

#### ***Foreign Priority***

2. Acknowledgment is made of applicant's claim for foreign priority based on an application 19855873.2 filed in Germany on December 3, 1998 and the PCT/DE99/03825 filed on December 1, 1999. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

#### ***Information Disclosure Statement***

3. Acknowledgment is made of the information disclosure statements filed on June 1, 2001, May 23, 2003 and September 12, 2003 together with copies of the patents and papers. The patents and papers have been considered in reviewing the claims.

#### ***Drawings***

4. The drawings submitted on June 1, 2001 are accepted.
-

### ***Specification***

5. The disclosure is objected to because of the following informalities:

Page 1, Para 0004, "This objective is achieved a method and apparatus", appears to be incorrect and it appears that it should be, "This objective is achieved by a method and apparatus".

Appropriate correction is required.

### ***Claim Objections***

6. The following is a quotation of 37 C.F.R § 1.75 (d)(1):

The claim or claims must conform to the invention as set forth in the remainder of the specification and terms and phrases in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description.

7. Claims 7, 9 and 10 are objected to because of the following informalities:

In Claim 1, "classifying, in which said preprocessing operation, of said measurement data" appears to be incorrect and it appears that it should be "classifying, in said preprocessing operation, of said measurement data".

In Claim 9, "online adapting control for said technical plant" appears to be incorrect and it appears that it should be "online adaptive control for said technical plant".

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In Claim 10, "An arrangement for designing a technical system" appears to be incorrect and it appears that it should be "An apparatus for designing a technical system".

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 1-3 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Klimasauskas et al.** (U.S. Patent 6,278,962) in view of **Piche et al.** (U.S. Patent 6,278,899).

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10.1 **Klimasauskas et al.** teaches hybrid linear neural network process control. Specifically, as per claim 1, **Klimasauskas et al.** teaches a method for designing a technical system (CL1, L11-12), comprising the steps of:

providing a substitute model that describes measurement data of a predetermined system (CL3, L22-25; CL3, L25-29); and

applying the substitute model adapted with regard to its quality in a design of the technical system (CL3, L22-37; CL5, L6-9; CL5, L34-45).

**Klimasauskas et al.** teaches comparing the measurement data of the predetermined system with data determined by the substitute model (CL3, L30-33; CL7, L53-57).

**Klimasauskas et al.** does not expressly teach determining a numerical value for a quality of the substitute model by comparing the measurement data of the predetermined system with data determined by the substitute model. **Piche et al.** teaches determining a numerical value for a quality of the substitute model by comparing the measurement data of the predetermined system with data determined by the substitute model (CL19, L23-66; CL16, L16-30), because that would allow adjusting the manipulated variables to minimize the error and force the predicted variable to the desired value (CL39, L39-41). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the method of **Klimasauskas et al.** with the method of **Piche et al.** that included determining a numerical value for a quality of the substitute model by comparing the measurement data of the predetermined system with data determined by the substitute model. The artisan would have been motivated because that would

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allow to adjust the manipulated variables to minimize the error and force the predicted variable to the desired value.

**Klimasauskas et al.** teaches adapting the substitute model (CL3, L40-42; CL6, L42-48).

**Klimasauskas et al.** does not expressly teach adapting the substitute model from the numerical value for the quality to be as high of a quality as possible. **Piche et al.** teaches adapting the substitute model from the numerical value for the quality to be as high of a quality as possible (CL16, L16-30), because that would allow adjusting the manipulated variables to minimize the error and force the predicted variable to the desired value (CL39, L39-41). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the method of **Klimasauskas et al.** with the method of **Piche et al.** that included adapting the substitute model from the numerical value for the quality to be as high of a quality as possible. The artisan would have been motivated because that would allow to adjust the manipulated variables to minimize the error and force the predicted variable to the desired value.

Per claim 2: **Klimasauskas et al.** teaches that the substitute model is a regression model (CL8, L50-52; CL8, L55-57).

10.2 As per claim 3, **Klimasauskas et al.** and **Piche et al.** teach the method of Claim 1.

**Klimasauskas et al.** teaches a mean square deviation of the measurement data from the data determined by the substitute model (CL8, L40-41; CL8, L50-52). **Klimasauskas et al.** does not expressly teach that the step of determining a numerical value for a quality further utilizes a mean square deviation of the measurement data from the data determined by the substitute



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model. **Piche et al.** teaches that the step of determining a numerical value for a quality further utilizes a mean square deviation of the measurement data from the data determined by the substitute model (CL19, L23-66; CL16, L16-30), because that would allow adjusting the manipulated variables to minimize the error and force the predicted variable to the desired value (CL39, L39-41). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the method of **Klimasauskas et al.** with the method of **Piche et al.** that included the step of determining a numerical value for a quality further utilizing a mean square deviation of the measurement data from the data determined by the substitute model. The artisan would have been motivated because that would allow to adjust the manipulated variables to minimize the error and force the predicted variable to the desired value.

Per claim 8: **Klimasauskas et al.** teaches controlling a technical plant utilizing the data obtained by designing (CL1, L11-12; CL5, L6-9; CL5, L34-45).

Per claim 9: **Klimasauskas et al.** teaches online adapting control for the technical plant (CL1, L11-12).

10.3 As per claim 10, **Klimasauskas et al.** teaches an arrangement for designing a technical system, comprising a processor unit (fig. 1; Fig. 2; CL5, L6-9; CL5, L34-45);

measurement data of a predetermined system are described based on a substitute model and stored in the processor unit (CL3, L22-25; CL3, L25-29).

**Klimasauskas et al.** teaches comparing the measurement data of the predetermined system with data determined by the substitute model (CL3, L30-33; CL7, L53-57).

**Klimasauskas et al.** does not expressly teach that a numerical value for a quality of the substitute model is determined by the processor unit by comparing the measurement data of the predetermined system with data determined by the substitute model. **Piche et al.** teaches that a numerical value for a quality of the substitute model is determined by the processor unit by comparing the measurement data of the predetermined system with data determined by the substitute model (CL19, L23-66; CL16, L16-30), because that would allow adjusting the manipulated variables to minimize the error and force the predicted variable to the desired value (CL39, L39-41). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the arrangement of **Klimasauskas et al.** with the arrangement of **Piche et al.** that included a numerical value for a quality of the substitute model being determined by the processor unit by comparing the measurement data of the predetermined system with data determined by the substitute model. The artisan would have been motivated because that would allow to adjust the manipulated variables to minimize the error and force the predicted variable to the desired value.

**Klimasauskas et al.** teaches the substitute model is adapted (CL3, L40-42; CL6, L42-48); and the substitute model adapted with regard to its quality is used for designing the technical system (CL3, L22-37; CL5, L6-9; CL5, L34-45). **Klimasauskas et al.** does not expressly teach adapting the substitute model from the numerical value for the quality to be as high of a quality as possible. **Piche et al.** teaches adapting the substitute model from the numerical value for the quality to be as high of a quality as possible (CL16, L16-30), because that would allow adjusting

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the manipulated variables to minimize the error and force the predicted variable to the desired value (CL39, L39-41). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the method of **Klimasauskas et al.** with the method of **Piche et al.** that included adapting the substitute model from the numerical value for the quality to be as high of a quality as possible. The artisan would have been motivated because that would allow to adjust the manipulated variables to minimize the error and force the predicted variable to the desired value.

11. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Klimasauskas et al.** (U.S. Patent 6,278,962) in view of **Piche et al.** (U.S. Patent 6,278,899), and further in view of **Amado** (U.S. Patent 5,701,400).

11.1 As per claim 4, **Klimasauskas et al.** and **Piche et al.** teach the method of Claim 1. **Klimasauskas et al.** teaches the deviation of the latter (measurement data) from the data determined by the substitute model (CL8, L40-41; CL8, L50-52). **Klimasauskas et al.** does not expressly teach sorting the measurement data according to their quality, with respect to the deviation of the latter from the data determined by the substitute model. **Amado** teaches sorting the measurement data according to their quality, with respect to the deviation of the latter from the data determined by the substitute model (CL67, L32-34), because that would allow elimination of irrelevant information (CL17, L55). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the method of **Klimasauskas et al.** with the method of **Amado** that included sorting the measurement data

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according to their quality, with respect to the deviation of the latter from the data determined by the substitute model. The artisan would have been motivated because that would allow elimination of irrelevant information.

**Klimasauskas et al.** does not expressly teach picking out a predetermined number of n% of worst measurement data. **Amado** teaches picking out a predetermined number of n% of worst measurement data (CL37, L4-5), because that would allow elimination of irrelevant information (CL17, L55). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the method of **Klimasauskas et al.** with the method of **Amado** that included picking out a predetermined number of n% of worst measurement data. The artisan would have been motivated because that would allow elimination of irrelevant information.

11.2 As per claim 5, **Klimasauskas et al.** and **Piche et al.** teach the method of Claim 1.

**Klimasauskas et al.** teaches the deviation of the latter (measurement data) from the data determined by the substitute model (CL8, L40-41; CL8, L50-52). **Klimasauskas et al.** does not expressly teach sorting the measurement data according to their quality, with respect to the deviation of the latter from the data determined by the substitute model. **Amado** teaches sorting the measurement data according to their quality, with respect to the deviation of the latter from the data determined by the substitute model (CL67, L32-34), because that would allow elimination of irrelevant information (CL17, L55). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the method of **Klimasauskas et al.** with the method of **Amado** that included sorting the measurement data according to their quality, with respect to the deviation of the latter from the data determined by

the substitute model. The artisan would have been motivated because that would allow elimination of irrelevant information.

**Klimasauskas et al.** does not expressly teach picking out a predetermined number of n% of worst measurement data unless this data lie in a continuous range. **Amado** teaches picking out a predetermined number of n% of worst measurement data unless this data lie in a continuous range (CL37, L4-5), because that would allow elimination of irrelevant information (CL17, L55). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the method of **Klimasauskas et al.** with the method of **Amado** that included picking out a predetermined number of n% of worst measurement data unless this data lie in a continuous range. The artisan would have been motivated because that would allow elimination of irrelevant information.

12. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Klimasauskas et al.** (U.S. Patent 6,278,962) in view of **Piche et al.** (U.S. Patent 6,278,899), and further in view of **Hoffberg et al.** (U.S. Patent 5,920,477).

12.1 As per claims 6 and 7, **Klimasauskas et al.** and **Piche et al.** teach the method of Claim 1. **Klimasauskas et al.** does not expressly teach reducing an amount of measurement data in the course of a preprocessing operation; and classifying, in which the preprocessing operation, of the measurement data. **Hoffberg et al.** teaches reducing an amount of measurement data in the course of a preprocessing operation; and classifying, in which the preprocessing operation, of the measurement data (CL27, L38-42), because that would allow eliminating data not necessary to

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characterize the program (CL27, L41-42). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the method of **Klimasauskas et al.** with the method of **Hoffberg et al.** that included reducing an amount of measurement data in the course of a preprocessing operation; and classifying, in which the preprocessing operation, of the measurement data. The artisan would have been motivated because that would allow eliminating data not necessary to characterize the program.


### ***Conclusion***

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kandasamy Thangavelu whose telephone number is 703-305-0043. The examiner can normally be reached on Monday through Friday from 8:00 AM to 5:30 PM.

If attempts to reach examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Teska, can be reached on (703) 305-9704. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-9600.

K. Thangavelu  
Art Unit 2123  
August 21, 2004

  
JEANNE HOMERE  
PRIMARY EXAMINER